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After-School Programs and Academic Impact: A Study of Chicago's After School Matters

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After-school programs for adolescents have increasingly come to be seen as a way to promote positive youth development (Eccles & Gootman, 2002; Simpkins, 2003). Although after-school programs may serve many functions, from curbing risky behaviors such as sexual activity and drug abuse in the out-of-school hours to facilitating supportive relationships with adults and peers, many target academic achievement. By incorporating education-related activities, such as tutoring, homework assistance, and academic instruction, such programs have been shown to positively impact academic achievement.^{1,2} Yet, even programs not specifically designed to improve academic achievement can positively impact academic outcomes (see, for example, Lauer, et al., 2006 and Kane, 2003). For example, positive academic outcomes are related not only to involvement in academic activities at school, but also involvement in non-academic school clubs and performing arts activities, and participation in team sports and prosocial activities outside of school, such as volunteering and community service (Eccles & Barber, 1999). Such findings highlight the possible impact of a range of after-school programs on academic achievement.

Chicago's After School Matters (ASM) program offers an exceptional opportunity to study whether an after-school program designed to help high school students learn work skills can increase their commitment to succeeding in school. The program, which is the largest of its kind for high school students, offers paid internships in the arts, technology, sports, and communications to teenagers, and is offered in some of Chicago's most underserved schools in a public school system where over one-third of students drop out by the age of 18. After School

1. For examples of programs designed to increase academic achievement and findings from evaluation studies, see Zakia, Cochran, Hair, & Moore, 2002.

2. For example, the evaluation of the Upward Bound precollege program conducted by Myers and Schrim found that participants reported higher educational expectations, earned higher grades, earned more credits, were more likely to graduate, and were more likely to attend a postsecondary institution; cited in Bodilly, Susan and Megan K. Beckett "Making Out-Of-School Time Matter: Evidence for an Action Agenda" RAND Corporation, 2005.

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Matters stresses the importance of school by requiring students to attend school on any day they participate in its programs. Beyond that, it aims to offer students something to look forward to during the school day and thus to encourage their attendance.

This report presents an initial study of ASM's impact on school attendance and performance. It finds that students who participate in ASM miss fewer days of school than similar classmates. Students who participated at the highest levels in the after-school program also tended to fail fewer core academic courses (English, Math, Science, and Social Studies). Furthermore, over the course of their time in high school, students who were enrolled in ASM for three or more semesters and those who participated at the highest levels had higher rates of graduation and lower dropout rates than similar students who did not participate in the program.

Did ASM cause these better outcomes, or did the students who participated in the program have higher levels of school attachment and better academic performance to begin with?³ This study finds that, indeed, the students who participated in ASM, on average, had better prior attendance records and fewer course failures than students who did not enroll in the program. However, the study finds that after taking prior levels of attendance and educational achievement into account, ASM participants still had significantly better outcomes than students who did not participate in ASM.

3. Ideally, we would conduct an experiment where we would randomly assign youth to a treatment group (ASM participation) or a control group (no ASM or some other specific activity). This would provide the best assessment of the program. Service providers seldom choose this option because it requires that some youth not be able to participate. As an alternative, it is possible to statistically adjust for the fact that ASM participants, on average, may be different from those youth who do not participate. Because we assume that ASM participants may be more attached to school or motivated for success in general, which is strongly associated with better school outcomes, we include in our analyses an adjustment using a characteristic that is associated with their level of motivation both prior to and after their participation in ASM. For attendance, we compare participants' and non-participants' attendance before and after the semesters we study. For course failure and graduation/dropout, we control for their educational achievement prior to their entering high school. In this way, we adjust for the possibility that youth who participate in ASM are prone to having better outcomes regardless of their ASM participation.

Program Fosters New Skills and Motivates Teens for the Future

Chicago's After School Matters was created in 2000 as a nonprofit organization with the mission of expanding out-of-school opportunities for Chicago teens. It evolved from the success of Gallery 37, a program that offers teenagers paid apprenticeships in the arts, and was expanded through After School Matters to include job-training programs in sports, technology, and communications. The organization is run under the leadership of Chicago's First Lady, Maggie Daley, and it partners with the City of Chicago, the Chicago Public Schools (CPS), the Chicago Park District, the Chicago Public Library, and community-based organizations in order to provide its services. From its start in 2000, After School Matters had ambitious expansion plans hoping to reach 50 percent of Chicago teens before the end of the decade.⁴ By 2006, ASM was administering close to 725 programs in 35 schools and providing over 22,000 apprenticeships and other opportunities for teens.⁵

In their apprenticeships, students are taught by skilled professionals and are paid stipends to recognize the value of the work that they produce, to show them that hard work gets rewarded in the workplace, and to encourage low-income teens—who would otherwise be obligated to work at low-wage, low-skill jobs—to participate. Through its programs, ASM seeks to enable Chicago teens to safely take part in activities that offer positive relationships with adults, to acquire skills that translate to the workplace, and to learn about career and educational opportunities in their neighborhoods and throughout the city. By exposing youth to the job skills they will need to succeed in the future and building strong relationships between youth and adults in the program, ASM hopes to enhance the extent to which youth value the skills they learn at school and to motivate youth to perform academically at higher levels. ASM directly stresses the importance of school by requiring participants to attend school on any day they participate in ASM.

Information on participation in After School Matters was collected from the twenty-four schools that were operating ASM programs during the fall of 2003 in order to determine whether participation in ASM was associated with

4. "No Idle Hours: Making After-School Time Productive and Fun for Chicago Teenagers," 2002 available from theafterschoolproject.org.

5. <http://www.afterschoolmatters.org/about/history/>

greater school attachment and improved academic performance. Student participation in the program was tracked during the three semesters beginning in the fall of 2002 through the fall of 2003. In addition, information on school attendance and course failures was collected for the latter two of these semesters.⁶ Of the 20,370 students who were included in the study, 17,099 did not participate in ASM, 1,982 applied to the program but did not end up participating, and 1,289 (or 6.3%) participated in ASM at different levels of intensity.

In order to determine whether participating in ASM was associated with greater graduation rates and lower drop-out rates, students who started high school in September of 2001 at the first twelve schools to implement ASM were tracked throughout their entire high school career.⁷ Twenty-six percent of the 3,411 students in the cohort participated in ASM, and about 4 percent of the students participated very intensely, with 155 participating in over 90 percent of the sessions per semester and 135 participating four or more semesters.⁸

Improved Attendance

If school-based after-school programs enhance students' attachment to school or their interest in learning, these programs could lead to better school attendance. However, determining whether an after-school program leads students to increase their attendance is difficult because the students who participate in after-school programs may be more motivated to begin with. Indeed, students with better

6. Only youth who were enrolled in a CPS high school in both spring 2003 and fall 2003 were included in the analysis. This means that students' attendance rates are overestimated and course failure rates are probably underestimated because youth who dropped out of school between the second and third semesters of the study tended to have poor attendance and to fail more courses, but were excluded from the analysis.

7. These schools include: Bowen, Carver, Curie, Englewood, Juarez, Manley, Orr, Robeson, Senn, South Shore, Taft, and Westinghouse.

8. Because students who transferred to non-CPS schools may have graduated without record, these students were excluded from the analyses on graduation and dropout. In addition, students who left CPS due to other reasons, including incarceration, institutionalization, or death were also excluded. This reduced the 2001 cohort to 2,854 students.

school attendance during the spring of 2003 were more likely to apply for⁹ and become first-time ASM participants the following fall than other students in their school. Therefore, it is necessary to account for this difference. Even when demographic characteristics and school enrollment are taken into account, the students who would go on to participate in ASM missed about two fewer days of school than non-participants the semester before they enrolled in the program. Moreover, the students who missed the fewest days (8 days versus 11 for all non-participants) were the most likely to participate at the highest levels in ASM during the next semester.

In order to better gauge the impact of participating in ASM on school attendance, it is important to try to account for the potentially higher level of school attachment of ASM participants. School achievement, or grades and test scores, can be used as a proxy for motivation because motivation is related to academic success (Fortier, Vallerand, & Guay, 1995; Gottfried, 1990; Mitchell, 1992). Similarly, students' school attendance in previous semesters can indicate their level of attachment to school. Hence, students who participated in ASM were compared to students who did not participate in the after-school program but were of the same demographic characteristics and had similar levels of our proxy measures for attachment.

After taking into account demographic characteristics and levels of school attachment (as indicated by their prior test scores and attendance records), students who participated in ASM, especially at the highest levels, tended to miss fewer days of school than students who did not participate in ASM. In particular, students who participated in ASM for twenty-seven or more of the possible thirty days, missed two fewer days of school: 7.5 missed days of school compared to 9.6 days (see Table 1).

9. Applicants miss fewer days than other non-participants but more than participants. This could indicate that ASM is having an impact on those who participate. However, it could also be that more engaged students participate in ASM because ASM selects its participants after an interview process and tries to select students evaluated as motivated and likely to complete the program.

Table 1

Days Absent, by ASM Participation Status

ASM Participation Fall Semester 2003	School Absences^a (days missed)
Nonparticipants	9.6
ASM Applicants	9.0
Level of Participation in ASM (Total possible: 30 days)	
Low ASM Participation (Fewer than 13 days)	8.6
Moderate ASM Participation (Between 13 and 22 days)	9.1
High ASM Participation (Between 23 and 27 days)	8.2
Very High ASM Participation (More than 27 days)	7.5

a. Controlling for student demographics, school enrollment, and school attendance and achievement during the prior semester (Spring 2002).

The better attendance that ASM participants experienced before enrolling and while participating in ASM disappears two semesters after they stop attending the program. Students who participated in ASM during the fall 2002 semester only are no different in their attendance by the fall of 2003 than other similar students who never participated in ASM. This provides stronger evidence that ASM participation causes increased school attendance, because when participation ceases, school attendance decreases (it may also be that whatever caused the students to leave ASM is responsible for their lower subsequent attendance).

Fewer Course Failures

Does participation in ASM reflect greater academic motivation and, consequently, higher grades? Here again, it is important to take into account the motivation of the students who participate in ASM because teens who apply to ASM may be more motivated to succeed in school than teens who do not.

To be sure, students who participated in ASM for the first time during the fall of 2003 had failed fewer core academic courses during the prior spring semester: after taking into account demographic characteristics and school enrollment, participants failed on average 12.5 percent of their core courses compared to the 18.2 percent failed by students who did not participate in ASM during the next semester. The

students who failed the lowest proportion of their courses (10%) went on to have the highest rates of participation in ASM during the next semester (at least 27 out of the 30 days, see Table 2).

Several measures were taken to try to determine what effect participating in ASM had on student course failures—independent from the motivation or other characteristics with which youth started the program. Because students who have previously struggled to pass courses in high school are more likely to fail courses in the future, teens were compared to other teens who failed a similar proportion of their courses the previous semester. Moreover, students' differing academic preparation for high school was accounted for by comparing teens to other teens who entered high school with similar standardized test scores. Finally, because students' engagement in school may also influence their ability to pass their courses, engagement was assessed by including students' school attendance the previous semesters.

After taking into consideration demographic characteristics, prior course failures, academic preparation, and levels of school attendance in prior semesters, the teens who participated in ASM at the highest levels failed a significantly lower percentage of their core courses — 9.6 percent compared to 15.8 percent for those who did not participate in ASM (see Table 2). The students who participated in ASM at lower levels had core course failure rates that were not statistically different from students who did not participate in ASM (i.e., the differences in their core course failure rates could be attributed to chance alone and not to participating in the program).

The better academic performance that ASM participants achieved before enrolling and while participating in ASM disappears two semesters after they stop attending the program. Students who participated in ASM during the fall 2002 semester only were failing their courses by the fall of 2003 at a rate that was not significantly different from that of other similar students who never participated in ASM.

Table 2Percent of Core Academic Courses Failed ^a**ASM Participation, Fall 2003**

	Percent of Courses Failed Spring 2002 Before Participating in ASM ^b	Percent of Courses Failed During Fall 2003 ^c
Nonparticipants	18.2%	15.8%
ASM Applicants	15.0%	13.7%
ASM Participants (Total days possible: 30)		
Low ASM Participation (Fewer than 13 days)	13.6%	12.4%
Moderate ASM Participation (Between 13 and 22 days)	15.0%	14.0%
High ASM Participation (Between 23 and 27 days)	11.7%	13.2%
Very High ASM Participation (More than 27 days)	10.0%	9.6%

a. Only students who were enrolled in a CPS high school during both Semester 2 and Semester 3 were included in the analysis. This means students' course failure rates were probably underestimated because students who dropped out of school between Semester 2 and Semester 3 tend to fail more courses during Semester 2.

b. Controlling for student demographics and school enrollment.

c. Controlling for course failure rate and school attendance during the previous semester.

Higher Graduation Rates and Lower Dropout Rates

The final test of attachment to school is whether students stay in school and graduate. Does participating in ASM influence a student's decision to finish high school? To address this question, we analyzed logistic regression models to predict graduation and dropout by age 18 (results shown in Table 3). Students who participated in ASM had higher graduation rates¹⁰ and lower dropout rates¹¹ than non-participants, and among ASM participants, graduation rates increased and dropout rates decreased in general as levels of participation and number of semesters in ASM

10. Graduates were students who received a regular high school diploma (non-GED, non alternative high school diploma by age 18.

11. Dropouts were students who were recorded by CPS as dropouts or lost students, or left school without a leave reason, or enrolled in an alternative school and did not return to a regular school.

increased.¹² These results held even after taking into account student demographic characteristics and their prior academic achievement.

For students with very high levels of participation in ASM, the odds of graduating were 2.7 times greater than the odds for students who did not participate in the program, even after taking into account demographic characteristics and prior academic achievement. Similarly, for the students who participated in the program for four or more semesters the odds of graduating were 2.4 times that of students who did not participate. When it came to dropping out of school, the students who participated most intensely in the program and those who were enrolled for the longest time had significantly lower odds (see Table 3).

Table 3Likelihood of Graduation and Dropout at Age 18, by ASM Participation^a

Variable	Graduation	Dropout
Level of ASM Participation	Odds Ratio	Odds Ratio
Low	2.22***	.46**
Moderate	1.60*	.67
High	2.20***	.41**
Very High	2.72***	.30**
ASM Tenure		
Two semesters	1.32	.68
Three semesters	2.52**	.26**
Four or more semesters	2.42**	.33**

*p<.05, ** p<.01, *** p<.001 (two-tailed tests)

a. An odds ratio of one indicates no relationship. Thus, values far above or far below one indicate larger effects. Odds ratios greater than one indicate positive relationships, and odds ratios less than one indicate negative relationships. These odds ratios are adjusted to account for the characteristics of these students.

12. Levels of participation were measured by looking at each student's days of participation over the total number of possible days they could have participated in ASM each semester from fall 2001 to spring 2005.

Remaining Questions

Although ASM programs strive to enlist hard-to-reach youths through an annual sign-up drive in which teachers are encouraged to “seek out the loners, the discouraged or troubled, or students they suspect simply don’t have anything constructive to do,”¹⁸ it is the students who, on average, tend to have higher attachment to schooling, as expressed by greater attendance and lower rates of course failure, who are most likely to apply for and participate in After School Matters.

This finding raises the question of whether ASM should be expanded more broadly across new schools or whether a more intense effort should be made to reach out to more students who could benefit at the schools already involved. In order to resolve this issue, more information is needed about what it would take to motivate and enroll the other students at already-participating schools and about whether there are other quality after-school alternatives for the more motivated kids at schools where ASM is not yet active.

In spite of their better prior attachment measures, the students who participated in ASM were only slightly better off than their peers. Students who participated in ASM at high levels, for instance, entered the program with a record of better high school attendance than similar classmates. Still, nearly 30 percent of those students had missed eleven or more days of school the previous semesters.

Those students who participated in ASM performed better in the measures studied than students who did not participate in the program even after demographic characteristics and prior achievement in standardized test scores were taken into account.

However, a remaining challenge is explaining why some students participate in after-school programs and others who are similar to them do not. A better understanding of the factors motivating students to sign up for the program is crucial for improving enrollment in after-school programs such as ASM. Moreover, understanding the factors that lead teens to participate in ASM can also facilitate a clearer accounting of the extent to which these hard-to-observe student characteristics lead to better outcomes in and of themselves and to better measure the contribution made by the after-school programs.

18 “No Idle Hours: Making After-School Time Productive and Fun for Chicago Teenagers,” 2002 available from theafter-schoolproject.org, page 21.

This report also highlights the importance of understanding the factors that contribute to engaging and retaining students who are already enrolled in after-school programs like ASM. Of the students who participate in ASM, those who have the highest participation during the semester (participating in over 75% and 90% of the possible ASM program days, depending on the outcome) and those who participate for the greater number of semesters (3 or more out of a possible 8) are the ones who show the greatest benefits. At the same time, the positive outcomes that students have while participating in ASM seem to diminish once students leave the program: two semesters after students leave the program, their attendance levels and their rates of course failure are no different from those of similar students who never participated in ASM.

A better knowledge of what factors make students participate more actively in the programs and stay involved could help improve student engagement and outcomes for all students enrolled. In addition, accounting for student factors that lead to a greater engagement in the program will lead to a clearer understanding of ASM’s contribution to the positive outcomes—independent of student characteristics such as enthusiasm or dedication.

Finally, because After-School Matters was designed to help high school students learn work skills, it would be of great interest to follow these students beyond high school to see how they fare in the workforce compared to their peers who did not participate in ASM. Given that they were more likely to graduate, they seem on the right track to a better future.

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